



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,301	04/24/2001	Scott Lee Wellington	5659-01800 TH1942	4730

7590 07/23/2003
DEL CHRISTENSEN
SHELL OIL COMPANY
P.O. BOX 2463
HOUSTON, TX 77252-2463

EXAMINER

KRECK, JOHN J

ART UNIT	PAPER NUMBER
----------	--------------

3673

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,301

Applicant(s)

WELLINGTON ET AL.

Examiner

John Kreck

Art Unit

3673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1608-1611, 1613-1650, 1652-1685, 5396-5400 and 5402-5412 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1608-1611, 1613-1650, 1652-1685, 5396-5400 and 5402-5412 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/19/03 has been entered.

Claims 1608-1611, 1613-1650, 1652-1685, 5396-5400, 5402-5412 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1608, 1610, 1647, 1649, 5398, 5399, 5400, and 5403 are rejected under 35 U.S.C. 102(b) as being anticipated by Bock, et al. (U.S. Patent number 4,458,757) see, in particular, column 2, lines 46-55.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3673

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1608-1611, 1617, 1618, 1620-1622, 1626-1633, 1635, 1636, 1641, 1642, 1643, 1644, 1645, 1646, 1647-1650, 1656, 1657, 1659-1661, 1665-1672, 1674, 1675, 1680, 1681, 1682, 1683, 1684, 1685, 5396, 5397, 5398, 5399, 5400, 5402, 5403, 5407, 5411, and 5412 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Meurs, et al. (U.S. Patent number 4,886,118) in view of Bock, et al. (U.S. Patent number 4,458,757).

Van Meurs teaches the steps of providing heat, allowing the heat to transfer, and producing. Van Meurs fails to teach the hydrogen content

Bock teaches that it is desirable to use oil shale with an H/C ratio of about 1.5; this corresponds to a hydrogen percentage of greater than 4%. It is apparent that this H/C ratio (and hence the hydrogen percentage of a hydrocarbon) is a good indicator of oil shale quality.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Van Meurs process with a hydrocarbon having at least 4% hydrogen as called for in claim 1608, and as taught by Bock, in order to treat high quality oil shale.

Van Meurs also teaches the superposition as called for in claim 1609.

Van Meurs also teaches the maintaining as called for in claim 1610.

Van Meurs also teaches the electrical heater as called for in claim 1611.

With regards to claim 1617; Van Meurs teaches the about 10°C/day; the claim limitations drawn to the heating energy are nothing more than well known thermodynamic equations.

Van Meurs also teaches the conduction as called for in claim 1618.

With regards to claims 1620-1622, 1626-1632, 1635, 1636, ;the nature of hydrocarbons produced from such heating is highly variable, and dependent upon many factors, not least of which is the characteristics of the coal. The components of the produced mixture are deemed to be the results of design variables, including coal characteristics and temperature.

With regards to claim 1633; ammonia is an inherent product of the Van Meurs process; and since the chief use of ammonia is to make fertilizer, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used ammonia generated from the Van Meurs process to make fertilizer.

Regarding claims 1641-1642; the increase in permeability is inherent as the kerogen is driven off/pyrolyzed/produced.

Van Meurs also teaches the yield as called for in claim 1643.

Van Meurs also teaches the at least 7 heaters as called for in claim 1644.

With regards to claim 1645; the seven or thirteen spot patterns disclosed by Van Meurs inherently includes triangular units.

With regards to claim 1646; the seven or thirteen spot patterns disclosed by Van Meurs inherently includes repetitive triangular units.

Art Unit: 3673

With regards to claim 5396; is apparent that the number of heat sources is largely a matter of engineering design. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used at least about 20 heat sources for each production well, as called for in claim 5396, based on the desired heating rate and formation heat transmission characteristics.

With regards to claim 5398; the Van Meurs reference teaches the pyrolysis zone.

Regarding independent claim 1647:

Van Meurs teaches the steps of providing heat, allowing the heat to transfer, and producing. Van Meurs fails to teach the hydrogen content

Bock teaches that it is desirable to use oil shale with an H/C ratio of about 1.5; this corresponds to a hydrogen percentage of greater than 4%. It is apparent that this H/C ratio (and hence the hydrogen percentage of a hydrocarbon) is a good indicator of oil shale quality.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Van Meurs process with a hydrocarbon having at least 4% hydrogen as called for in claim 1647, and as taught by Bock, in order to treat high quality oil shale.

Van Meurs also teaches the superposition as called for in claim 1648.

Van Meurs also teaches the maintaining as called for in claim 1649.

Van Meurs also teaches the electrical heater as called for in claim 1650.

With regards to claim 1656; Van Meurs teaches the about 10°C/day; the claim limitations drawn to the heating energy are nothing more than well known thermodynamic equations.

Van Meurs also teaches the conduction as called for in claim 1657.

With regards to claims 1659-1661, 1665-1671, 1674, 1675; the nature of hydrocarbons produced from such heating is highly variable, and dependent upon many factors, not least of which is the characteristics of the coal. The components of the produced mixture are deemed to be the results of design variables, including coal characteristics and temperature.

With regards to claim 1672; ammonia is an inherent product of the Van Meurs process; and since the chief use of ammonia is to make fertilizer, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used ammonia generated from the Van Meurs process to make fertilizer.

Regarding claims 1680-1681; the increase in permeability is inherent as the kerogen is driven off/pyrolyzed/produced.

Van Meurs also teaches the yield as called for in claim 1682.

Van Meurs also teaches the at least 7 heaters as called for in claim 1683.

With regards to claim 1684; the seven or thirteen spot patterns disclosed by Van Meurs inherently includes triangular units.

With regards to claim 1685; the seven or thirteen spot patterns disclosed by Van Meurs inherently includes repetitive triangular units.

Art Unit: 3673

With regards to claim 5397; is apparent that the number of heat sources is largely a matter of engineering design. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used at least about 20 heat sources for each production well, as called for in claim 5397, based on the desired heating rate and formation heat transmission characteristics.

With regards to claims 5399; the Van Meurs reference teaches the pyrolysis zone.

Regarding independent claim 5400:

Van Meurs teaches the steps of providing heat, allowing the heat to transfer, and producing. Van Meurs fails to teach the hydrogen content

Bock teaches that it is desirable to use oil shale with an H/C ratio of about 1.5; this corresponds to a hydrogen percentage of greater than 4%. It is apparent that this H/C ratio (and hence the hydrogen percentage of a hydrocarbon) is a good indicator of oil shale quality.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Van Meurs process with a hydrocarbon having at least 4% hydrogen as called for in claim 5400, and as taught by Bock, in order to treat high quality oil shale.

Van Meurs also teaches the superposition as called for in claim 5402.

Van Meurs also teaches the maintaining as called for in claim 5403.

Art Unit: 3673

With regards to claim 5407; Van Meurs teaches the about 10°C/day; the claim limitations drawn to the heating energy are nothing more than well known thermodynamic equations.

With regards to claims 5409; the nature of hydrocarbons produced from such heating is highly variable, and dependent upon many factors, not least of which is the characteristics of the coal. The components of the produced mixture are deemed to be the results of design variables, including coal characteristics and temperature.

Van Meurs also teaches the at least 7 heaters as called for in claim 5411.

With regards to claim 5412; is apparent that the number of heat sources is largely a matter of engineering design. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used at least about 20 heat sources for each production well, as called for in claim 5412, based on the desired heating rate and formation heat transmission characteristics.

3. Claims 1614, 1653, and 5404 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock, et al. in view of Santourian (U.S. Patent number 3,165,154).

Bock fails to teach the natural distributed combustor, but teaches that any known heater can be used. Santourian teaches that a natural distributed combustor is useful in such processes for thick strata. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Bock process to have used a natural distributed combustor as taught by Santourian, and as called for in claims 1614, 1653, 5404, for processing thick strata.

4. Claims 1613, and 1652 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bock, et al. in view of Bennett (U.S. Patent number 3,680,633). Bock fails to teach the flameless distributed combustor, but teaches that any known heater can be used. Bennett teaches that a flameless distributed combustor is useful in such processes because it provides for speedy ignition. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Bock process to have used a flameless distributed combustor as taught by Bennett, and as called for in claims 1613, and 1652.

1. Claims 1615, 1654, and 5405 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Meurs and Bock, and further in view of Elkins (U.S. Patent number 2,734,579).

The Van Meurs reference fails to teach the controlling the temperature and pressure wherein the temperature is controlled as a function of the pressure or the pressure is controlled as a function of the temperature.

Elkins teaches controlling the pressure in order to lower the temperature (col. 3, line 46); this is done in order to help prevent overheating. It would have been obvious to one of ordinary skill in the art at the time of the invention to have further modified the Van Meurs process to have included the temperature is controlled as a function of the

Art Unit: 3673

pressure or the pressure is controlled as a function of the temperature as called for in claims 1615, 1654, and 5405, and as taught by Elkins, in order to prevent overheating.

2. Claim 1637, 1676, and 5410 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Meurs and Bock, and further in view of Gregoli, et al. (U.S. Patent number 6,016,867).

The Tsai reference fails to teach the altering pressure to inhibit production of hydrocarbons having carbon numbers greater than about 25. The Gregoli reference teaches that in a similar in-situ processes, it is beneficial to use high pressure to break heavy hydrocarbons. It is well known that carbons having carbon numbers greater than about 25 are considered to be heavy; and impede production because they are dense and viscous. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Tsai method to have included altering pressure to inhibit production of hydrocarbons having carbon numbers greater than about 25, as called for in claim 1637, 1676, and 5410, in order to improve production.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

Art Unit: 3673

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1616, 1619, 1623-1625, 1634, 1638-1640, 1655, 1658, 1662-1664, 1673, 1677-1679, 5406, and 5408 have been identified as including subject matter which is allowable over the prior art.

Claims 1608-1611, 1613-1650, 1652-1685, 5396-5400, 5402-5412 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over copending Application Nos. 09/840,937; 09/841,288; 09/841,291; 09/841,300; 09/841,432; 09/841,433, 09/841,438; 09/841,445; 09/841,495; 09/841,638; and 09/841,639. Although the conflicting claims are not identical, they are not patentably distinct from each other because the differences are obvious, as set forth above. Each of these copending applications has an independent claim which generally corresponds to a claim in the instant application. A table listing the applications and the claims in the instant application which correspond is shown below:

Copending application	Corresponding claims
09/840,937	1638-1640, 1677-1679
09/841,288	1638-1640, 1677-1679
09/841,291	1634, 1673, 5408
09/841,300	1624, 1633

09/841,432	1634,1673,5408
09/841,438	1625,1664
09/841,445	1638-1640, 1677-1679
09/841,495	1625,1664
09/841,638	1634,1673,5408
09/841,639	1623,1662

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

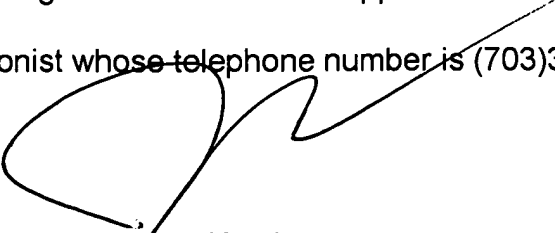
Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on M-F 6:00 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9326 for regular communications and (703)872-9327 for After Final communications.

Art Unit: 3673

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.



John Kreck
Examiner
Art Unit 3673

JJK
July 17, 2003